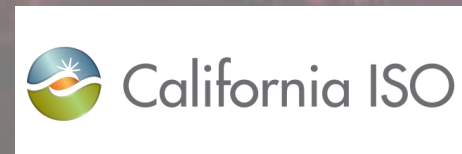


# Overview of the 2018 Report by the Statewide Advisory Committee on Cooling Water Intake Structures

**Presented by: Courtney Smith**  
**Chief Deputy Director**  
**California Energy Commission**  
**April 17, 2018 – Item 6**

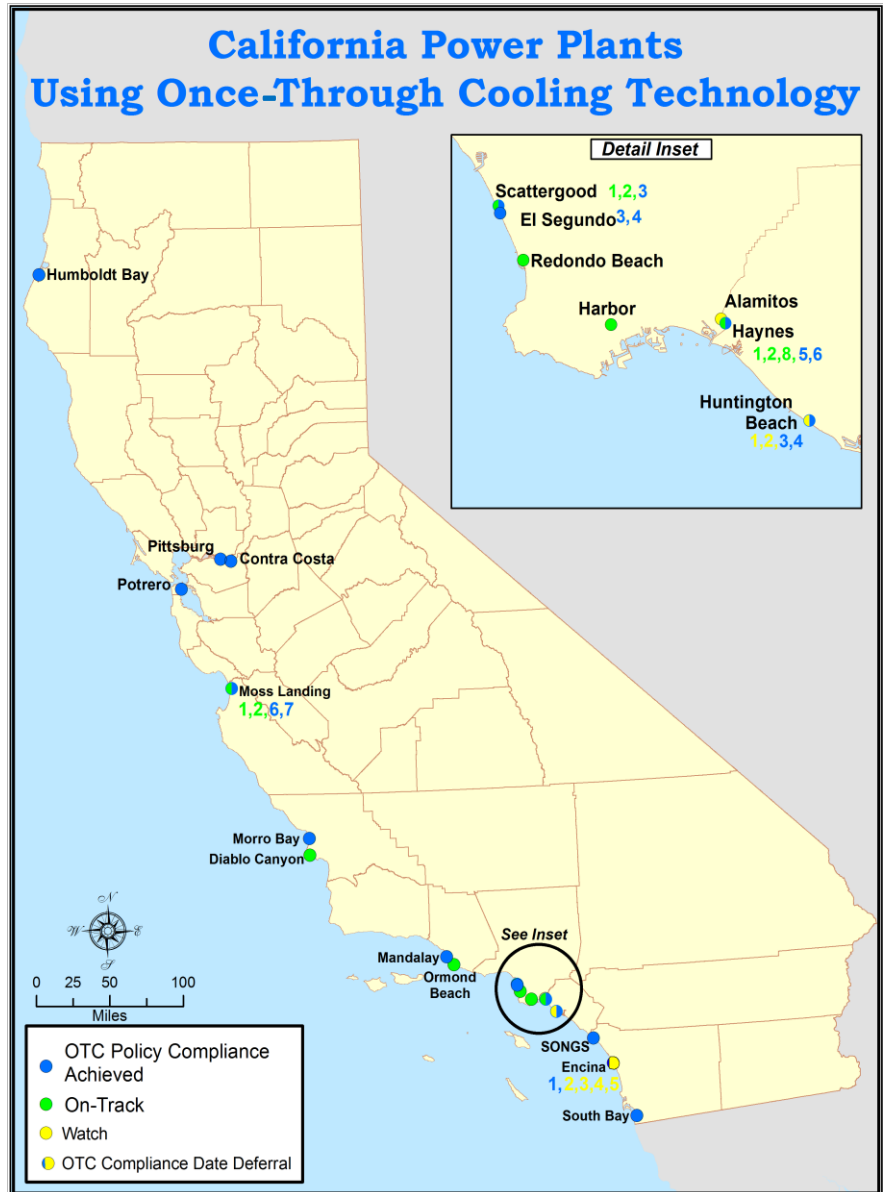


# **OTC Progress and Reliability Assessment**

- **No changes are recommended for the OTC Policy compliance schedule at this time**
- **Resource, infrastructure, and reliability needs to be continually assessed by:**
  - **California Public Utilities Commission (CPUC)**
  - **California Independent System Operators (CAISO)**
  - **California Energy Commission (CEC)**

# Status of OTC Plants

- 9 plants have achieved compliance - some early
- 6 plants are on track to achieve compliance
- 3 replacement plant projects are under construction
- 1 plant has announced plans to retire



# OTC Compliance Achieved

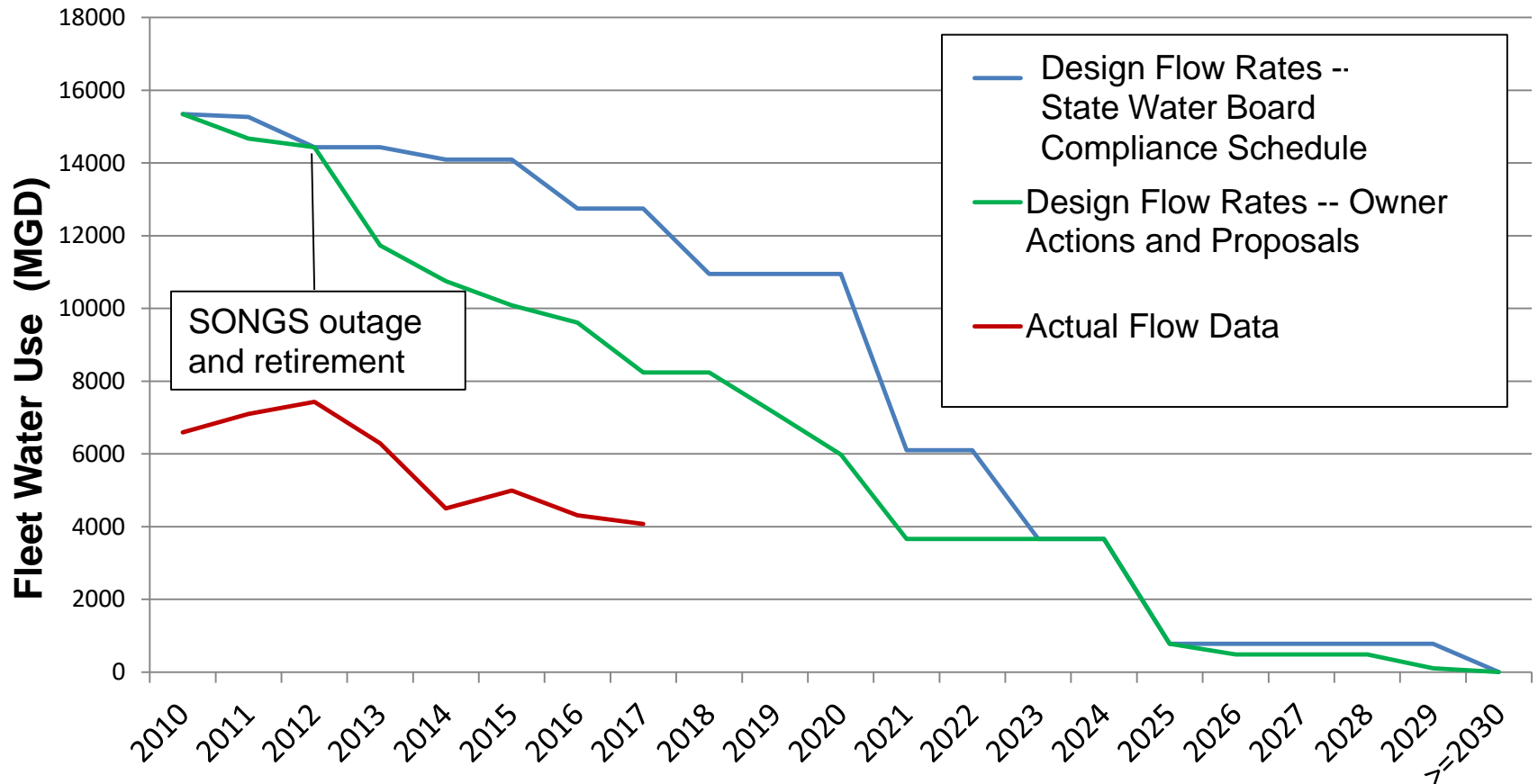
Facility & Units	Net Qualifying Capacity (NQC, in MW)	Compliance Date	Retirement Date
Humboldt Bay 1, 2	135	Dec. 31, 2010	Retired Sept. 30, 2010
South Bay	296	Dec. 31, 2011	Retired Dec. 31, 2010
Potrero 3	206	Oct. 1, 2011	Retired Feb. 28, 2011
Huntington Beach 3, 4	452	Dec. 31, 2020	Retired Nov. 1, 2012
Contra Costa 6, 7	674	Dec. 31, 2017	Retired April 30, 2013
El Segundo 3	335	Dec. 31, 2015	Retired July 27, 2013
Haynes 5, 6	318	Dec. 31, 2013	Retired June 13, 2013
San Onofre 2, 3	2,246	Dec. 31, 2022	Retired June 7, 2013
Morro Bay 3, 4	650	Dec. 31, 2015	Retired Feb. 5, 2014
El Segundo 4	335	Dec. 31, 2015	Retired Dec. 31, 2015
Scattergood 3	497	Dec. 31, 2015	Retired Dec. 31, 2015
Pittsburg	1,159	Dec. 31, 2017	Operations ceased Dec. 31, 2016
Moss Landing 6, 7	1,509	Dec. 31, 2020	Retired Jan. 1, 2017
Encina 1	106	Dec. 31, 2017	Retired March 1, 2017
Mandalay 1, 2	430	Dec. 31, 2020	Retired Feb. 6, 2018

# OTC Remaining Compliance

Facility & Units	NQC	Compliance Date	Owner proposed Compliance Method
Alamitos 1, 2, 6	848	Dec. 31, 2020	Plans to retire on Dec. 31, 2019 to allow Alamitos to be repowered
Alamitos 3, 4, 5	1,163	Dec. 31, 2020	Retire units
Encina Units 2-5	844	Dec. 31, 2018	Retire units by compliance date
Harbor 5	229	Dec. 31, 2029	Plans to repower on Dec. 31, 2029
Haynes 1, 2	444	Dec. 31, 2029	Plans to repower on Dec. 31, 2025
Haynes 8	575	Dec. 31, 2029	Plans to repower on Dec. 31, 2028
Huntington Beach 1	215	Dec. 31, 2020	Plans to retire on Dec. 31, 2019
Huntington Beach 2	215	Dec. 31, 2020	Retire unit
Moss Landing 1, 2	1,020	Dec. 31, 2020	Track 2*
Ormond Beach 1, 2	1,516	Dec. 31, 2020	Retire Units
Redondo Beach 7	493	Dec. 31, 2020	Plans to retire on Oct. 1, 2019 to allow Huntington Beach to repower
Redondo Beach 5, 6, 8	848	Dec. 31, 2020	Retire units
Scattergood 1, 2	367	Dec. 31, 2024	Plans to repower by Dec. 31, 2024

\* Track 2 of the OTC Policy requires actions to reduce impingement and entrainment

# OTC Fleet Water Use



Source: Figure 1, pg. 9, 2018 SACCWIS Report

# Resources to Replace OTC

Planned resources to replace SONGS and implement OTC:

- **Preferred resources\***
  - Energy efficiency
  - Demand response
  - Distributed generation
  - Energy storage
- **Transmission solutions**
  - Reactive support (e.g., synchronous generators)
  - Transmission lines and grid upgrades
- **Conventional generation**

*\*Preferred resources are those used for efficiency, demand response, renewable resources, and distributed generation*



# CEC: Important Actions

## CEC Actions:

- **Alamitos:**
  - Application for Certification (AFC) approved by the CEC on April 12, 2017
- **Huntington Beach:**
  - AFC approved by the CEC on April 12, 2017
- **Redondo Beach:**
  - AFC currently suspended
- **NRG Puente**
  - AFC suspended until May 1, 2018

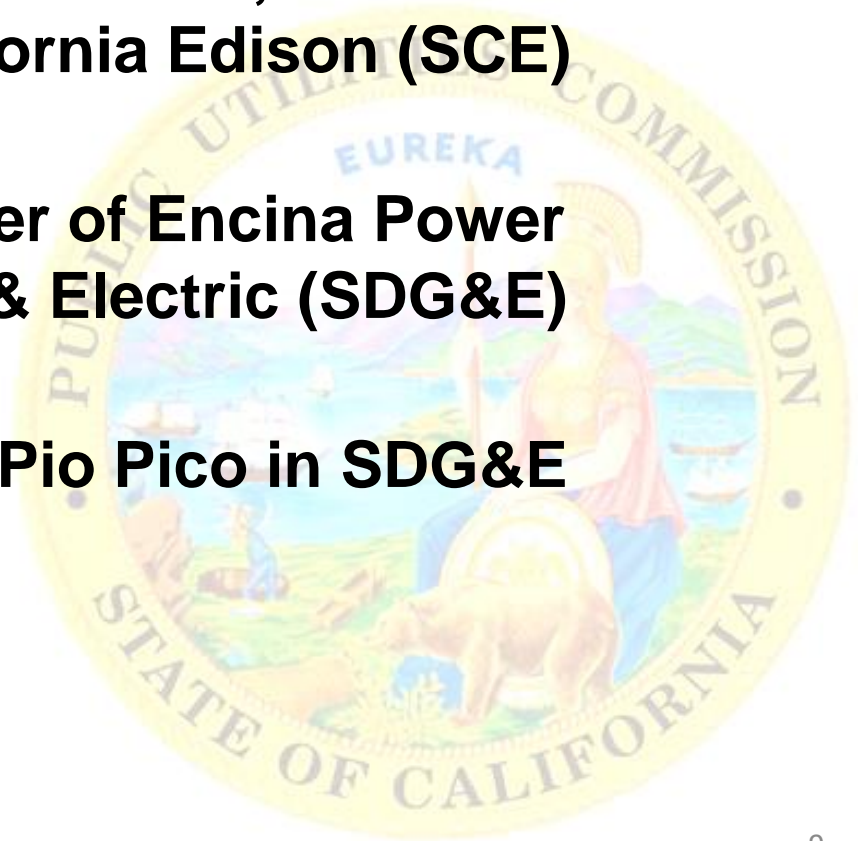




# CPUC: Pending Actions

## CPUC Actions:

- **Approved contracts for a total of 2,087 MW of capacity in Southern California Edison (SCE) territory**
- **Approved 500 MW re-power of Encina Power Station in San Diego Gas & Electric (SDG&E) territory**
- **Operational 300 MW from Pio Pico in SDG&E territory**



# CAISO: Pending Actions

## CAISO Actions:

- Continued facilitation of Board-approved transmission projects
- Draft 2017-2018 Transmission Plan (TPP) indicates that authorized resources and previously approved transmission projects are working together to meet the reliability needs in the LA Basin and San Diego areas
- Draft 2017-2018 TPP recommends approval of an alternate solution in the Moorpark and Santa Clara subareas to allow Ormond Beach to retire
- 2018 Local Capacity Technical Analysis posted on May 1, 2017, and submitted to the State Water Board

# Moss Landing (2017, 2020)

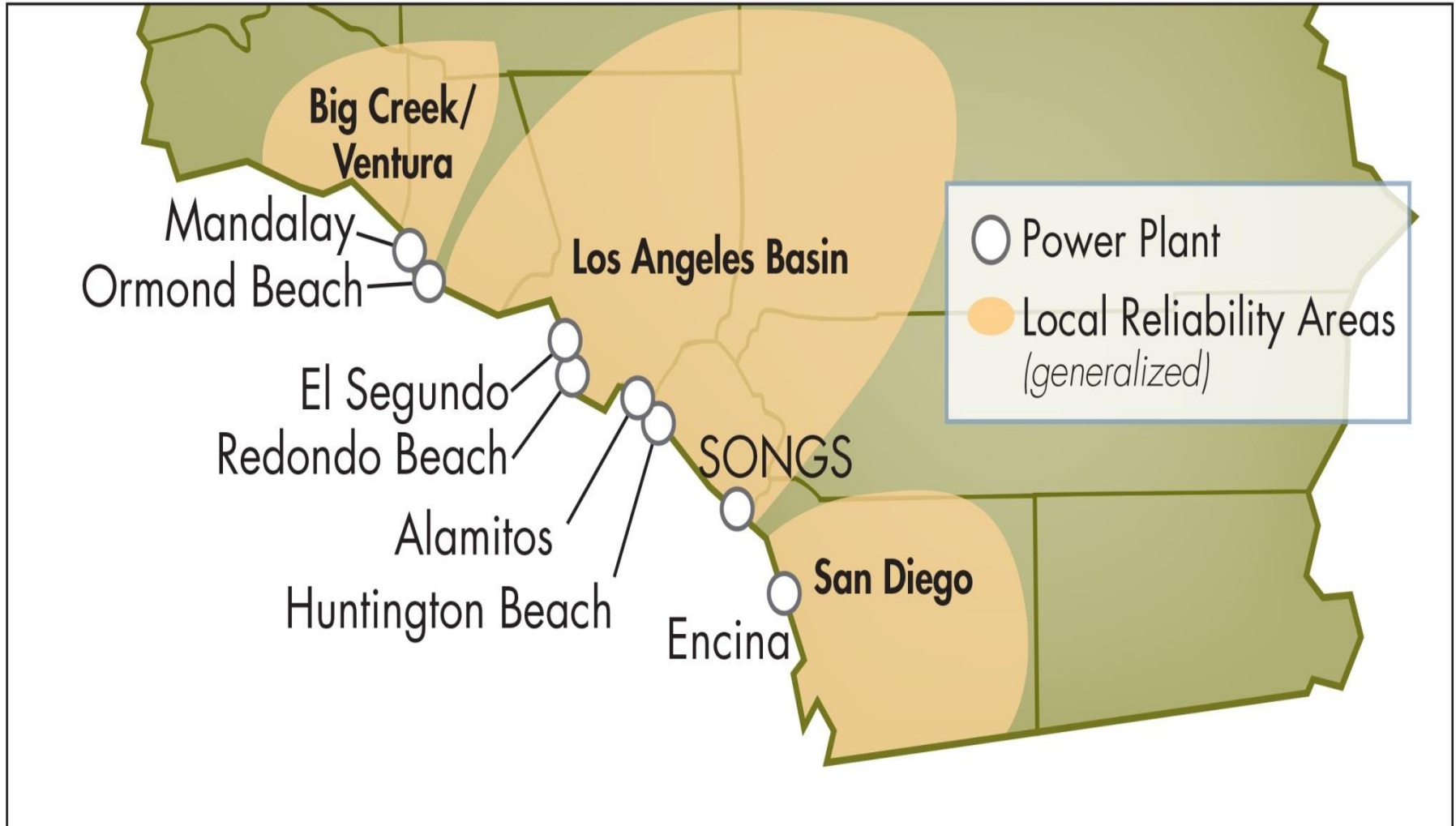
- Moss Landing is single largest power generating facility in California:
  - Units 6 & 7 retired December 31, 2017
  - Units 1-2 new combined cycle generating turbines, 510 MW each
    - Variable speed drive controls on Units 1-2 completed December 16, 2016
    - Units 1 & 2 are scheduled for Track 2 compliance by December 31, 2020
  - All construction expected to occur during scheduled maintenance outages (no dual unit outages anticipated)
  - Track 2 compliance not expected to impact operating range in MW of units or maximum achievable capacity factor
- ***SACCWIS does not recommend a change in compliance dates***

# Ormond Beach (2020)

- Consists of 2 steam boiler units with total combined capacity of 1,486 MW
- CPUC authorized 215-290 MW in the area where Ormond Beach located (i.e., Moorpark subarea)
- Settlement with the State Water Board in October 2014 determined Track 1 compliance infeasible
- January 19, 2018, NRG confirmed intent to retire facility by its compliance date with no further operations
- ***SACCWIS does not recommend a change in compliance date***

# Local Capacity Areas

## Los Angeles Basin and San Diego Local Capacity Areas



# Encina (2018)

- **5 Steam Boiler OTC units for 950 MW aggregated capacity**
- **Notable Dates:**
  - November 2015 - CEC approved 600 MW Carlsbad Energy Center Project (CECP)
  - February 23, 2017 - SACCWIS recommended deferral of Encina's OTC compliance date for Units 2-5 from December 31, 2017, to December 31, 2018
  - August 15, 2017 – State Water Board adopted the SACCWIS amendment to the OTC Policy to extend the compliance date by one year to Dec. 31, 2018
  - November 30, 2017 - OAL approved OTC Policy amendment
  - NRG on track to complete CECP by Q4 2018
    - *Enables retirement of the remaining Encina OTC units by December 31, 2018*



# Redondo Beach (2020)

- 4 units with total capacity of approximately 1,300 MW
- Proposed repowering project is natural-gas fired, combined-cycle, air-cooled, electrical generating facility with net generating capacity of 496 MW
- **Notable Dates:**
  - AFC suspended until November 2015
  - Unit 7 scheduled to shut down October 31, 2019, in advance of the OTC Policy compliance date
  - Units 5, 6, and 8 scheduled to shutdown December 31, 2020, on the OTC Policy compliance date
- ***SACCWIS does not recommend a change in compliance dates***



# Alamitos (2020)

- 6 units with a total capacity of approximately 2,000 MW
- OTC Policy compliance date: December 31, 2020
- **Notable Dates:**
  - Units 1, 2, and 6 expected to retire early on December 31, 2019
  - Units 3, 4, and 5 expected to retire by the OTC Policy compliance date
  - April 12, 2017 - AFC approved by the CEC
  - Construction underway and on track to be online April 2020
- ***SACCWIS does not recommend a change in compliance date***

# Huntington Beach (2020)

- Units 1 and 2 with a total capacity of 452 MW
- OTC Policy compliance date of December 31, 2020
  - Resource adequacy contract executed that will extend the operation of Huntington Beach units 1 and 2 through December 31, 2019 and December 31, 2020 respectively
  - To be permanently retired at those contract end dates
- Repowering project:
  - PPA awarded for 644 MW capacity with planned initial delivery date of May 1, 2020
- ***SACCWIS does not recommend a change in compliance date***

# LADWP OTC Compliance Schedule Status

- Findings in the 2017 Grid Reliability Report mirror those reported in previous reports and continue to underscore that LADWP's OTC compliance schedule is the most aggressive that is also feasible
- Harbor, Haynes, and Scattergood are on track for compliance with the OTC Policy
- Scattergood units 1 & 2 are the next units in the repowering schedule

**HARBOR GS**



**HAYNES GS**



**SCATTERGOOD GS**





# Conclusions

- **No recommendations for changes to compliance dates are proposed at this time**
- **CAISO and CPUC have authorized resources to ensure grid reliability**
- **CAISO, CEC, and CPUC will continue to monitor developments and perform additional analyses with most recent data available to ensure reliability**
- **The State Water Board should recognize that it may be necessary to modify final compliance dates for some generating units**